

Collaboration Rate of Authors in Producing Scientific Papers in the Journal of Advanced Periodontology & Implant Dentistry (JAPID) during 2009-2020

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Abstract

Authors' collaboration in producing scientific articles is a common relation between scientific people in which article production is easily shared between collaborators. This article determines the authors' collaboration in The Journal of Advanced Periodontology & Implant Dentistry (JAPID) for 2009 to 2020. The Scientometric method was used in this research. The researchers from the journal website downloaded all published papers at JAPID from the first issue until 2020. The collected data were entered into an Excel software spreadsheet, and the author's collaboration coefficient was computed. A total of 376 articles by 1076 people were published in JAPID until this research. The average number of authors per article was 2.9. According to affiliation, the first rank belongs to Iranian researchers by publishing 372 articles in JAPID, and India with 23 articles was on the second place in publishing articles in JAPID. Results also showed that only 103 articles had a single author, and 61 articles had 5 authors and more (from 376 articles). The average collaboration coefficient amongst authors of JAPID is 0.7, which is considered acceptable and relatively suitable.

Keywords: Scientometrics, Journal of Advanced Periodontology & Implant Dentistry (JAPID), Collaboration Rate, Authors Collaboration Coefficient.

Introduction

Scientific collaboration is the process of coexistence between two or more researchers who try to share their knowledge and produce scientific research or products. Contribution to scientific works is more important and necessary nowadays in the telecommunications world, in which the growth of disciplines and interdisciplinary areas are increasing. Collaborative research will improve works' quality and scientific validity (Marefat & Sherkatolabasieh, 2019). Co-authorship on an international level leads to more visibility of journals, articles, and authors. There are some researches (such as Ghane & Mozafari, 2020; Fazeli-Varzaneh, Ghaderi-Azad & Elango, 2021; Rajput, Teli & Chaparwal, 2020; Saberi, Sahebi & Zerehsaz, 2020; Negahban, Soltaninejad & Naghdinejad, 2021; Gaud, Singh & Singh, 2019; Verma, Shukla, & Yadav, 2019; Kanekar & Azeeza, 2018; Marefat, Saberi, & Azodi, 2015; Erfanmanesh & Hosseini,

2015; Jeyasekar & Saravanan, 2015; Heidari & Safavi, 2013; Fatemi, Hosseinpour & Zarei, 2013; Mooghali, Alijani, Karami & Khasseh, 2012; Marefat, Saberi, Abdolmajid & Zoodranj, 2012) on the collaboration rate of authors in producing scientific articles published in scientific journals.

JAPID, as a peer-reviewed and open-access journal, has been published since Dec 2009 at Tabriz University of Medical Sciences (TUOMS), an international university with the Forth rank among Medical universities in the Islamic Republic of Iran, according to Scimago Institutions Ranking¹ (in 2021). This journal is affiliated with the Iranian Academy of Periodontology. The scientific performance of single journals can be revealed through scientometric studies on single journals (Erfanmanesh & Hosseini, 2015). It seems that there is no report, published document, or research related to scientometric studies of the JAPID. A survey on 12 years of producing and publishing scientific articles in JAPID can determine the journal situation for policymakers and the journal's publisher. Erfanmanesh and Hosseini (2015) mentioned that journals' quality, maturity, and productivity in different fields could be understood using this study type. Thus, the researchers of this study try to find and reveal the main scientometric criteria of JAPID, as an important journal published at TUOMS as an international university.

In this article, the rate of collaboration of JAPID authors in producing scientific articles during the 2009-2020 period is considered and surveyed. The main objectives of the article are to study the number of articles and authors in JAPID during the 2009-2020 period. By analyzing the gathered data, the researchers determine countries with the most published articles and scientific productions in the JAPID. Investigating the publication year of articles, the highest level of collaboration across all published articles in JAPID is another objective. Finally, the authors' collaboration coefficient average in the JAPID was calculated.

Research question

The main aim of this study is to identify the collaboration coefficient between authors of JAPID. The key questions of research are:

1. What is the distribution of the authors by gender who published their articles in JAPID?
2. What is the average number of authors per article in JAPID?
3. What is the distribution of collaborations amongst authors who published articles in JAPID?
4. Which countries/affiliations have the most published articles in JAPID?
5. What is the average collaboration coefficient between authors of JAPID?

Methodology

Data analysis in this study was done by using scientometric methods. Data was gathered from the first volume and issue on Jan 2009 until Vol. 12, No.2, 2020. All papers of JAPID were downloaded from the journal website. The required data were collected and entered in an Excel software spreadsheet. Finally, the author's collaboration coefficient was computed using the following formula:

$$cc = 1 - \left\{ \sum_{j=1}^k \left(\frac{1}{j} \right) * \frac{F_j}{N} \right\}$$

In this formula:

F_j = the number of j -authored research papers published in a discipline during a certain period;

j = the numbers of authors (1 author, 2 authors, 3 authors...)

N = the total number of research papers published in a discipline during a certain period;

K = the greatest number of authors per paper in a discipline.

The authors' collaboration coefficient is a number between 0 and 1. When this number is above 0.5, collaboration amongst authors is more evident. Moreover, when the number is close to 0, it signifies that lower levels of cooperation exist among the authors (Ajiferuke, Burell & Tague, 1988).

Findings

The distribution of the authors by gender who published their articles in JAPID is visible in Table 1. From 1078 authors of JAPID, as shown in Table 1, 470 (43.6%) are women, and 608 (56.4%) are men.

Table 1

The distribution of the authors by gender in JAPID

Sex	women		Men		Total	
Year	sum	percent	sum	percent	Sum	percent
2009	7	23.3	23	76.7	30	100
2010	27	43.5	35	56.5	62	100
2011	12	20.7	46	79.3	58	100
2012	17	27.9	44	72.1	61	100
2013	19	42.2	26	57.8	45	100
2014	21	39.7	32	60.3	53	100
2015	21	38.2	34	61.8	55	100
2016	17	33.3	34	66.7	51	100
2017	4	12.5	28	87.5	32	100
2018	107	43	142	57	249	100
2019	189	58.7	133	41.3	322	100
2020	29	48.3	31	51.7	60	100
Sum	470	43.6	608	56.4	1078	100

Over the years of JAPID publishing, the number of men who had published their articles in this journal is relatively more than women. In some years, such as 2009 and 2011, the number of men is more than three times the number of women. The number of articles and authors in JAPID during the years 2009-2020 are illustrated in Table 2. Findings showed that 376 articles by 1076 people were published during the 2009- 2020 period.

Table 2

The distribution of the articles and authors of JAPID

Year	Number of articles	Number of authors	The average number of authors per article
2009	8	30	3.8
2010	16	62	3.8
2011	16	58	3.6
2012	13	61	4.6
2013	12	45	3.7
2014	13	53	4.1
2015	11	55	5
2016	13	51	3.9
2017	10	32	3.2
2018	94	249	2.6
2019	154	320	2.1
2020	16	60	3.8
Sum	376	1076	2.9

It seems that from 2009, JAPID had a steady rate for the number of papers per volume. JAPID has published articles with a low variance in all years except for 2012, 2014, 2015, 2018, and 2019. Findings showed that the average ratio of authors per article was 2.9. The countries with the most published articles and scientific productions in JAPID are shown in Table 3. The distribution of the number of published documents in JAPID showed that, according to affiliation and country, 14 countries from all over the world had published articles in JAPID.

Table 3

The distribution of the number of published documents in JAPID based on Country/Affiliation

Country/Affiliation	Number of published documents in JAPID
Bhopal	1
Canada	7
Egypt	1
Germany	2
Greece	3
India	23
Iran	327
Italy	2
Malaysia	2
Nigeria	1
Spain	2
Tunisia	1
Turkey	2
United Kingdom	2
Sum	376

Findings showed that among all countries, which have published scientific articles in JAPID, Iran, with 327 articles, has the first rank. With 23 and 7 articles, India and Canada are in the next ranks for publishing articles in JAPID. The distribution of collaborations amongst

authors who published articles in JAPID is shown in Table 4. Results showed that from the 376 articles that have been published in JAPID, 103 articles have a single author, 81 articles have 2 authors, 70 articles have 3 authors, and 61 articles have 4 authors. This is notable to mention that 61 documents have 5 and more authors, which marked the highest collaborations amongst authors who published articles in JAPID.

Table 4

Distribution of collaboration amongst authors who published articles in JAPID

Year	Articles					Sum
	1 author	2 authors	3 authors	4 authors	5 authors and more	
2009	0	0	3	4	1	8
2010	3	1	1	5	6	16
2011	1	2	3	8	2	16
2012	0	1	1	4	7	13
2013	1	3	1	4	3	12
2014	0	2	1	4	6	13
2015	0	0	5	3	3	11
2016	0	3	3	3	4	13
2017	2	1	1	5	1	10
2018	31	22	18	7	16	94
2019	64	45	28	8	9	154
2020	1	1	5	6	3	16
Sum	103	81	70	61	61	376

The average of the authors' collaboration coefficient in JAPID is reported in Table 5. The collaboration coefficient among the authors of articles published in JAPID shows that the average is between 0.4 to 0.8 in most years and is near and upper than 0.5 in all years.

Table 5

Authors' average collaboration coefficient in JAPID

Year	Collaboration Coefficient
2009	0.7
2010	0.6
2011	0.7
2012	0.7
2013	0.6
2014	0.8
2015	0.7
2016	0.8
2017	0.6
2018	0.5
2019	0.4
2020	0.7
Sum	0.7

The highest value related to the collaboration coefficient belongs to the year 2016, and the lowest average is related to the year 2019 with a 0.4 value. The average collaboration coefficient among the authors of JAPID is 0.7, which is an acceptable value.

Discussion

The collaboration among writers of articles published in a journal shows the typical efforts between producers of scientific works. This research tries to survey the collaboration rate of authors in JAPID. This study emphasizes that specialists and the writers of papers in JAPID prefer to work together against individual efforts. In JAPID, 376 articles were published between 2009 and 2020. The average ratio of authors per article in JAPID was 2.9, while on some research such as Marefat, Makvande, Hoseini, Abdulmajid & Salimi (2013), this value was 3.35. The number of authors in JAPID is almost three times the number of articles. The 1078 writers of articles in JAPID is divided between women by 470 authors (43.6%) and men by 608 (56.4%). The number of male authors in JAPID is almost twice the number of women. Heidari and Safavi (2013) also found that the number of men (61%) as the writer of articles in the Iranian Journal of Pathology versus the number of women (39%) is considerable.

As an international journal published in Iran, it is axiomatic that JAPID is familiar to Iranian Periodontology & Implant Dentistry researchers. Thus, it seems normal that, according to affiliation and country, Iran, with 327 articles, ranks first amongst other countries that have papers published in JAPID followed by India and Canada with 23 and 7 articles, respectively. It seems that Iranian authors have a key role in publishing articles in JAPID, but as Saberi, Sahebi and Zerehsaz (2020) argue, this status is not considered positive for the journal and is not compatible with the criteria of standard journals. Therefore, policymakers of JAPID should consider and improve this matter by publishing articles from diverse affiliations, especially international authors.

Although JAPID is indexed in some public databases such as Google Scholar and DOAJ (<https://doaj.org>), an international directory of open access journals, it seems that indexing the JAPID in other international databases such as WOS, Scopus (<https://www.scopus.com>), and ISC (<https://www.isc.ac/en>) can increase its visibility to international researchers.

Although the number of single written articles that have been published in JAPID is notable to some extent (103 single authors) and is mostly related to the early days of the journal, the tendency to group writing and publishing papers in JAPID is significant and notable. As such, 61 articles are written by 5 authors and more. This is notable compared to Heidari and Safavi (2013), who found that three authors wrote the maximum number of articles in the Iranian Journal of Pathology. According to Ajiferuke et al. (1988), the cooperation coefficient among authors has been significant (0.7) and is an acceptable value. This value is upper than the findings of such researchers as Gaud, Singh and Singh (2019), who reported an average of 0.38, and Verma et al. (2019), who found an average of 0.43. Marefat et al. (2013) reported an average of 0.6, and Heidari and Safavi (2013) mentioned 0.69. Saberi, Sahebi and Zerehsaz (2020) mentioned that encouraging co-authorship could increase the quality of articles, journal scientometric indicators, and citations to articles.

Conclusion

Overall, scientific journals that are the product of the growth and development of knowledge and specialization of science provide the necessary platform for the elevation of science. Along with other influential factors, it seems that the publication of professional articles in scientific journals is related to the scientific cooperation between experts in conducting professional research. Based on some evidence presented in this research, the JAPID has received a great deal of attention from periodontology and dental implants experts

from all over the world. Although despite the available evidence that the JAPID publishes the team works, on the other hand, it seems that by expanding the collaboration viewpoint on the publishing team works between the editorial board and the audience of the JAPID, more professional and collaborated works would be published on this journal on future. It seems that policymakers of JAPID should periodically monitor and browse the authors' collaboration coefficient to improve the journal's quality.

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Endnote

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